

Scientific Note

***ERNOBIUS MOLLIS* (L.) (COLEOPTERA: ANOBIIDAE): AN EXOTIC BEETLE COLONIZES MONTEREY PINE, *PINUS RADIATA* D. DON, IN NORTHERN CALIFORNIA**

In 1990, the first collection of the bark anobiid, *Ernobius mollis* (L.), west of Texas was made in Oakland, Alameda County, California from a living Norway spruce, *Picea abies* (L.) Karsten, planted as an ornamental tree (Seybold, S. J. & J. L. Tupy, 1993. Pan-Pacif. Entomol., 69: 36–40.). *Ernobius mollis* is native to northern Europe, but has been introduced into North America (Craighead, F. C. 1950. Insect Enemies of Eastern Forests, USDA For. Serv. Misc. Pub. 657.) and the southern hemisphere (Casimir, J. M. 1958. Div. Wood Tech., For. Comm. New South Wales Tech. Notes, 2: 24–27 [Australia, New Zealand, and South Africa]). Seybold and Tupy (1993) speculated that *E. mollis*, known to colonize Monterey pine, *Pinus radiata* D. Don, in the southern hemisphere, might soon colonize the abundant urban plantings of *P. radiata* in the San Francisco Bay Area.

On 20 Sep 1993, a homeowner in Albany, Alameda County, California (Talbot Street) reported that she had observed insect damage in a variety of wooden articles in her home. On examination of her residence, none of the wooden articles of concern to the homeowner appeared to harbor active infestations of wood-destroying insects. However, examination of several pieces of barked *P. radiata* firewood stacked within the structure indicated that the small branch sections were infested with a wood-boring insect. These *P. radiata* branches had emergence holes through the bark surface. Peeling the already loose bark from the xylem revealed live larvae and pelleted frass in the bark-xylem interface as well as larval insect galleries etched in the xylem surface. The homeowner reported that the *P. radiata* branches had been cut approximately six months earlier (i.e., Mar 1993) from a standing tree in Fremont, Alameda County, California on Bud Court near the Highway 880 Mowry Avenue Exit. The branches were placed in a laboratory cage at the University of California at Berkeley at ambient indoor temperature (16° C to 29° C) and larval and adult *E. mollis* were periodically collected from the logs from Sep 1993 to Jun 1996. By Jun 1996 the bark-xylem interface had been completely obliterated and the remaining paper thin bark formed an easily damaged shell over the xylem.

This collection documents the presence of *E. mollis* in urban plantings of *P. radiata* in the San Francisco Bay Area. Although this collection record was from cut branches, future northern California reports of infestations from moribund *P. radiata* and perhaps other ornamental conifers should be expected. Through its association with moribund tree tissue, *E. mollis* may also play a role in the dissemination of the pitch canker fungus, *Fusarium circinatum* Nirenberg & O'Donnell (Nirenberg, H. I. & K. O'Donnell. 1998. Mycologia, 90: 434–458.), a fairly recently introduced and fatal disease of *P. radiata* and other pines in coastal northern California (McCain, A. H., C. S. Koehler & S. A. Tjosvold. 1987. Calif. Agric., 41: 22–23.). In Europe, *E. mollis* is documented to infest cones of Douglas-fir, *Pseudotsuga menziesii* (Mirbel) Franco, and giant sequoia,

Sequoiadendron giganteum (Lindley) J. Buchholz (Roques, A. 1983. Les insectes ravageurs des cônes et graines de conifères en France, Institut National De La Recherche Agronomique Publication.). A native species of *Ernobius* [*punctulatus* (LeConte)] is known to infest cones of *P. radiata* (White, R. E. 1982. A Catalog of the Coleoptera of America North of Mexico Family Anobiidae, USDA Agric. Handbook No. 529-70, Furniss, R. L. & V. M. Carolin 1992. Western Forest Insects, USDA For. Serv. Misc. Publ. No. 1339.) and to acquire the pitch canker fungus through its association in the *P. radiata* cone with other cone-infesting insects (Hoover, K., D. L. Wood J. W. Fox & W. E. Bros. 1995. Can. Entomol., 127: 79–91.). Therefore, association of *E. mollis* with moribund *P. radiata* cone tissue and the bark-xylem interface of branch and stem material appear to be a likely means for this introduced insect to disseminate pitch canker disease in northern California. As both the insect and the fungal pathogen have wider host ranges among conifers, *E. mollis* could play a role in transmission of the fungus to new hosts and to new regions such as the montane forests of the Sierra Nevada or the coastal forests of the Pacific Northwest.

Pinus radiata is frequently brought into coastal California homes as firewood, and this example illustrates how easily larval and adult *E. mollis* might enter homes. However, experiences from Europe, the southern hemisphere, and eastern North America suggest that because of its requirement for bark-covered sapwood, *E. mollis* will not be a pest in structures in northern California unless it encounters bark-covered timbers, or boards with unfinished edges or bark-occluded knots. This example also illustrates that although an active infestation of *E. mollis* may be present in firewood in a structure, if damage to other, unbarked wooden items in the structure clearly occurred prior to manufacture, any relationship between *E. mollis* and the damage can likely be discounted.

Finally, the original colony of *E. mollis* collected 22 Feb 1990 in Oakland was maintained until Aug 1996 in a laboratory cage at ambient indoor temperature on the original *P. abies* branch and stem material. On 12 Jul 1996, seven live male and twelve live female adults were recovered from the cage. One pair of these adults was observed *in copulo* and live larvae were also present. On 6 Aug 1996, one live male, four live females, and two live larvae were also recovered from the cage before the logs were frozen and disposed of. Thus, multiple, consecutive generations of *E. mollis* successfully re-infested the same dry substrate for more than 6.5 years.

Record.—USA. CALIFORNIA. ALAMEDA CO.: 1.5 km SE Albany Hill, Talbot Street, Albany, 20 Sep 1993, S. J. Seybold, *Pinus radiata*.

Acknowledgment.—I thank R. Kohl for bringing this occurrence of *E. mollis* to my attention; A. J. Blomquist (University of Nevada, Reno) for helping to process the specimens; D. L. Wood (University of California at Berkeley) and B. J. Cabrera (University of Minnesota) for critical reviews of earlier drafts of this report; and N. G. Rappaport (USDA Forest Service, Albany, California) for translation of French literature. This work was supported by a cooperative research agreement (PSW-92-0014CA) between DLW and the Chemical Ecology of Forest Insects Project, Pacific Southwest Research Station, U.S. Department of Agriculture, Forest Service, Albany, California. Specimens of *E. mollis* recovered from *P. radiata* were deposited in the California Academy of Sciences Entomology Collection, Golden Gate Park, San Francisco, California 94118.

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Received April 9, 2000; Accepted July 6 2000.